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COMPLETE SPECIFICATION.

Improvements in Pipe Wrenches.

I, GUSTAV HILL, Locksmith, of Viktorienstrasse 5, at Hagen, i/W, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to pipe wrenches and refers to improvements in that type of such devices in which two members are provided, one of which members is formed hollow and of U shape in cross section, whilst the other member is adapted to be received within the recess in such U shaped member and to be adjustable longitudinally with respect thereto in order to enable pipes of different
10 diameters to be gripped, means being also provided for locking together the two members when in use.

It has already been proposed to provide a pipe wrench in which one jaw member is adjustable longitudinally in a pivot pin rotating in the other member, the two members when in use being prevented from moving apart by a spring-
15 pressed pawl carried by one of the jaws which engages with ratchet teeth on the back portion of the moving member.

It has also been proposed with ordinary adjustable or monkey wrenches to provide serrations on one part engaging with corresponding serrations on the other part.

20 Pipe wrenches have also been constructed with teeth on the front surface of the sliding member engaging a spring pressed pawl or teeth on a locking member in the fixed portion, but with this arrangement the tendency, when the handles are forced together is to disengage the teeth, a disadvantage which is overcome with a pipe wrench constructed according to my invention as hereinafter
25 described.

Pipe wrenches have also been formed with a transverse pin extending across the U shaped member, adapted to engage with teeth or serrations in the back of the sliding member.

30 My invention consists more particularly in improvements in pipe wrenches of the last mentioned description in which the transverse pin is replaced by a locking piece or block provided with ratchet teeth or serrations, which teeth are adapted to engage with teeth provided upon the rear edge of the inner sliding member when the handles are gripped.

35 The locking block or piece may be pivoted within the U shaped member behind the sliding member, or in some cases the inner member may pass through the locking block or piece. The surface of the locking block or piece furnished with ratchet teeth may where desired be flat or curved in order to facilitate the adjustment of the parts.

40 The accompanying drawing shews by way of example two methods of carrying out the invention.

In the drawings Figs. 1 and 2 are longitudinal sections of the tools.

Fig. 3 is a section on the dotted line A B Fig. 1.

Fig. 4 is a section on line C D Fig. 2.

Fig. 5 shews a detail of construction hereinafter described.

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Referring to the drawings the wrench is formed with a solid arm 1 and a U shaped hollow arm 2, adapted to receive the same. The surface of the arm 1 is provided at the back with teeth or serrations 3, whilst the interior of the arm 2 is furnished with a locking piece 5 pivoted upon a spindle 4 and having at the back a convex surface. The opposite surface of this piece is provided with teeth 6 which come into engagement with the teeth on the arm 1, the locking piece 5 thus retains the arm 1 in the position which it occupies at any moment. Whatever may be the angle which the arm 2 makes with the arm 1 or the opening of the jaws, the position of the locking piece 5 is such that the teeth are always in engagement with the teeth on the arm 1.

In order to vary the distance of the jaws apart, it is not necessary to turn a screw, to compress a spring or to perform any other operation of this description but it is sufficient, simply to grasp the wrench, with the jaws turned downwards and to incline it, when the arm 1 moves automatically through its own weight. If then the wrench is brought past the horizontal position, or reversed, the arm 1 becomes automatically locked, the teeth or serrations thereon coming into engagement with the teeth on the piece 5.

In order to limit the displacement of the arm 1 so that it does not come entirely out of the inside of the arm 2, it is provided with a stop pin 7 which comes against a shoulder 8 provided in the extremity of the jaw of the arm 2.

As will be seen from Fig. 5 the back of the piece 5 is flat, whilst it is the opposite face which is provided with teeth formed on an arched surface. The back of the arm 1 may also be provided with teeth formed on a convex surface.

According to Figs. 2 and 4 of the drawing, the arm slides in a locking piece 9 and it is this piece which is provided on one of its interior surfaces with teeth coming into engagement with the teeth formed on the arm 1. The piece 9 is enabled to turn round the screw pivots 10 provided on each side of the piece 2, so as to allow the opening and closing of the jaws of the wrench.

The teeth on the piece 9 are kept in engagement with the toothed portion of the arm 1 by means of a suitable spring 11.

If pressure is applied to the back of the arm 1, the serrations on the latter become disengaged from the teeth on the locking piece and the arm 2 can be moved or adjusted.

The wrench may also be constructed by providing in the arm 1 a groove or grooves working over the screw pivots 10 which in this case project so as to enter the said groove or grooves or the screws may be replaced by a rivet passing from side to side of the member 2 and through a longitudinal slot in the arm 1.

In this case the piece 9 would be provided, where the rivet passes, with somewhat elongated perforations and on bringing pressure on the projection 12 with which this piece is formed, the serrations of the arm 1 would be freed so that the latter could be displaced.

The principal advantage of the invention consists in the fact that the opening of the jaws can be very easily varied, quickly and without trouble effecting a great saving of time in using the tool.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A pipe wrench of the type comprising two members provided with jaws one of which members is U shaped in cross section and the other is adapted to be received within the recess in such U shaped member and in which teeth are provided on the back of the inner member adapted to engage with locking means in the U shaped member, characterised by the locking piece in the U shaped member consisting of a block provided with ratchet teeth on its surface adapted to engage with the teeth at the back of the inner moving member.

2. A pipe wrench as claimed in Claim 1 in which the locking piece is pivoted within the U shaped member.

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3. A pipe wrench as claimed in the preceding claims in which the teeth at the back of the inner member and the teeth on the locking member, or on either of them are provided on a flat or convex surface substantially as described.

5 4. A constructional form of pipe wrench as claimed in Claim 1 in which the locking piece is provided with a perforation through which the inner member passes, the teeth being provided on the inner surface of the perforation and upon the back of the inner member, with or without a spring adapted to press the teeth on the inner member into contact with those on the perforation.

10 5. A constructional form of wrench as claimed in Claim 1 and Claim 2 in which the inner member is provided with grooves or with a slot into or through which pass projections or a pivot upon which the perforated locking member is pivoted, the bearings of such locking member being preferably elongated to allow for play substantially as described.

6. A pipe wrench constructed substantially as set forth.

15 Dated this 4th day of December, 1913.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

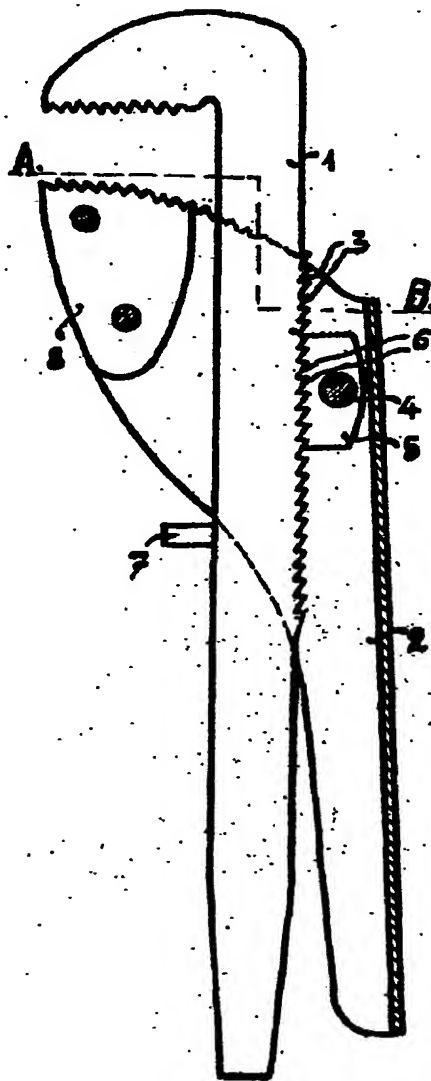


Fig. 2.

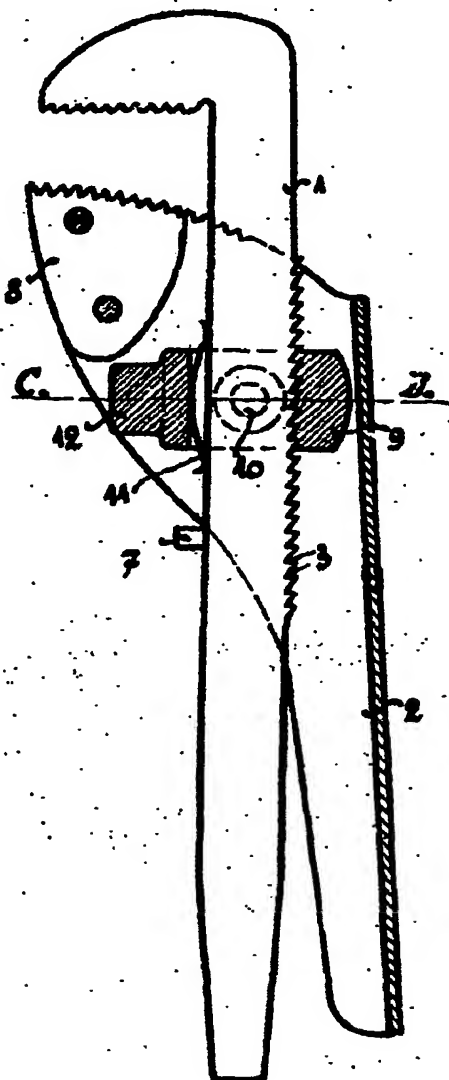


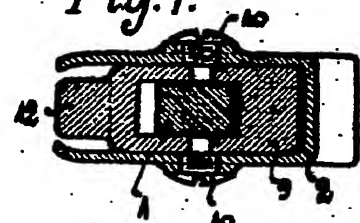
Fig. 5.



Fig. 3.



Fig. 4.



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